OKLAHOMA CORPORATION COMMISSION

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OIL & GAS CONSERVATION DIVISION



Tim Baker, Director

TO:

FROM: Tim Baker, Director, Oil and Gas Conservation Division

RE: Reduction in Volumes for Wells Located in Area of Interest for Induced Seismicity

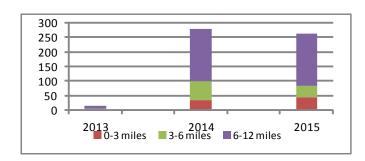
DATE: November 19, 2015

The Commission's Oil and Gas Conservation Division (OGCD) is expanding its efforts to reduce the risk of earthquakes potentially triggered by saltwater disposal wells. The following addresses the reduction of volumes being disposed in the Arbuckle formation within the defined area of interest. Any company that has been identified as operating one or more Arbuckle disposal well(s) located within one of the three zones in the defined area will need to reduce volumes disposed into such well(s) according to the schedule outlined at the end of this letter. The zones are shown on the attached map and are defined from the center point of the recent magnitude 4.0 earthquake, as reported by the Oklahoma Geological Survey (OGS), near the town of Crescent, as follows:

- Zero to three miles (0-3 miles)
- Three to six miles (3-6 miles)
- Six to ten miles (6-10 miles)

The area highlighted on the attached map has been designated based upon the dramatic increase in earthquakes within the immediate area. The OGCD has reviewed the earthquake activity of magnitude 2.5 and greater within two miles of the zones of interest, as reported by the Oklahoma Geological Survey (OGS). The earthquake activity from January 1, 2013 through November 19, 2015 is shown below. The attached map shows earthquake activity of the last 30 days.

Earthquake Activity Magnitude 2.5 or Greater										
Year	0-3 miles	3-6 miles	6-12 miles	Total						
2013	0	3	13	16						
2014	33	65	182	280						
2015	45	38	179	262						



As part of a joint effort to decrease the risk of induced seismicity, you will need to complete reduction of disposal volumes in accordance with the following schedule and as indicated for the wells below. All disposal well volumes shall be calculated on a daily basis. In addition, gauges and flow meters should be placed on such wells on or before Monday, December 7, 2015 so that Commission Field Inspectors can verify pressures and volumes. As has been the practice, pressures and volumes for such wells should continue to be supplied every Monday to the Commission, on a weekly basis, at ogvolumes@occemail.com.

The following schedule applies to all wells within the defined zones in the Area of Interest:

- > Zero to three miles (0-3 miles):
 - A shut-in of wells on or before November 26, 2015.
- Three to six miles (3-6 miles): Fifty percent reduction (50%).
 - On or before December 3, 2015, daily volumes should be reduced by twenty-five percent (25%) of the daily average of the total volume reported reported to the Commission on the weekly volume reports through November 18, 2015.
 - On or before December 17, 2015, daily volumes should be reduced by an additional twenty-five percent (25%), for a total volume reduction of twenty-five percent (50%) of the daily average of the total volume reported reported to the Commission on the weekly volume reports through November 18, 2015.
- > Six to ten miles (6-10 miles):
 - Maintain current levels at this time. This letter shall serve as notification that future seismic activity might result in an expanded area for reductions to include these wells.

If you have any questions contact the OGCD:

Charles Lord Jim Marlatt (405) 522-2751 (405) 522-2758

c.lord@occemail.com j.marlatt@occemail.com

Thank you in advance for your continued cooperation and attention to this matter.

Sincerely,

Tim Baker, Director

Oil and Gas Conservation Division

The wells in this area operated by your company, and the volume reduction schedule are listed below:

					Data				
						Average			
					Max of	of	Sum of		
Company	Status	Well Name	Buffer Zone 💌	Reduction 🔽	Volume	Volume	Volume	Max of Rolling 30	Requested Average Daily Volume
■ STEPHENS ENERGY GROUP LLC	■Not in Granite	■ CAT IN THE HAT 2-19 SWD	■ 3-6	50%	2207	820	211654	1622	410
		■ Fuxa #1-15	■ 3-6	50%	1018	212	54967	334	106
		■ KRITTENBRINK 1-36 SWD	■ 0-3	Shut In	590	213	55284	293	0
■ DORADO E & P PARTNERS LLC	■Not in Granite	■Vonda SWD 1-6	■ 0-3	Shut In	820	460	119081	712	0
■ DEVON ENERGY PRODUCTION CO LP	■Plugged Back	■EAVENSON 24-19N-3W 1SWD	6-10	Permit	12568	7636	1870890	10428	7636
		■ADKISSON 1-33 SWD	■ 0-3	Shut In	12457	7359	1803074	12147	0
		■ FRANK SWD 1-33 SWD	6-10	Permit	11629	7927	1942228	11479	7927
		■ LENA 15-19N-3W 1SWD	■ 3-6	50%	7843	1339	328033	4572	669
		■ DUDEK 12-18N-3W 1SWD	■ 6-10	Permit	6764	2908	712351	4296	2908
		■ HOPFER 1-20 SWD	■ 3-6	50%	6728	2289	563010	4821	1144
		■ FUXA 25-19N-4W 1SWD	□ 0-3	Shut In	5062	947	246269	4140	0
		■WILMA SWD 1-16SWD	■ 6-10	Permit	315	20	4975	71	20
	■Volume Reporting - preparing of	■Lemmons 14-19N-3W 1 SWD	■ 3-6	50%	11771	2939	314484	9023	1470
		■ ELAINE-10-18N-2W 1 SWD	6-10	Permit	3962	3803	403077	3897	3803
	■Injecting <1000 per day	■SMITH 1-14D SWD	■ 6-10	Permit	1685	579	150536	779	579
□ KIRKPATRICK OIL COMPANY INC	■Not in Granite	■ MARSHALL EAST SWD 1	6-10	Permit	2800	1574	405989	2125	1574
	■Plugged Back	■ OTTER SWD 1-4	■ 3-6	50%	2095	1364	352029	1697	682
■ SUNDANCE ENERGY OKLAHOMA LLC DBA SEO LLC	■Not in Granite	■ Brown Trust 19-3-17 #1 SWD	■ 3-6	50%	1080	397	103202	572	198
□ LONGFELLOW ENERGY LP	■Not in Granite	■ Hladik 14-1 SWD	6-10	Permit	5583	2772	720792	4269	2772
■ STEPHENS PROD CO	■Not in Granite	■ HOPFER BROTHERS SWD 1	6-10	Permit	2990	1774	459498	2161	1774
		□ CHAMBERS 1-8 SWD	6-10	Permit	1211	450	61584	856	450
				Total Daily Average		47783		Reduced Daily Average	34123
								% Reduction	29%

